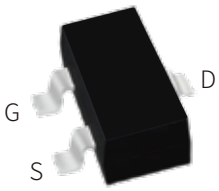
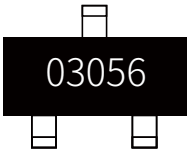
FEATURES

- Low $R_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Excellent ON resistance for higher DC current :
  $R_{DS(ON)}$<45mΩ @ V_{GS}=-10V(Type:38mΩ)
- V_{DS} =-30V,I_D =-7A
- Supper high density cell design
- High performance trench technology
- High Power and current handing capability
- Surface Mount Package



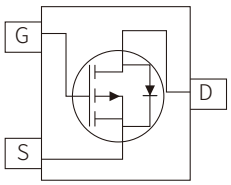
SOT23-3L



Marking

APPLICATION

- Load/Power Switching for portable device
- Charging device
- Power supply converters circuit



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS(T_a=25°C)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	-30	V
Continuous Drain Current	T_C=25°C	I_D	-7	A
	T_C=70°C		-4.5	
Pulsed Drain Current		I_{DM}	-25	A
Gate Source Voltage		V_{GSS}	±20	V
Total Power Dissipation T_C=25°C		P_D	3	W
Junction-to-Ambient Thermal Resistance[a]		$R_{\theta JA}$	83.3	°C/W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	°C

a Surface mounted on FR-5 Board using 1 square inch pad size, 1oz copper

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_{DS}=-250μA	-30	-33		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-1.0	-1.6	-2.5	V
Drain Cut-Off Current	I_{DSS}	V_{DS}=-30V,V_{GS}=0V			-1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS}=0V			±0.1	μA
Drain Source ON Resistance	$R_{DS(on)}$	V_{GS}=-10V,I_D=-6.5A		38	45	mΩ
		V_{GS}=-4.5V,I_D=-5A		53	72	mΩ
Forward Trans conductance	gFS	V_{DS}=-5V,I_D=-6.5A		14		S
Dynamic Characteristics						
Total Gate Charge	Q_g	V_{DS}=-15V,V_{GS}=-10V,I_D=-6.5A		9.6		nC
Gate-Source Charge	Q_{gs}			1.8		nC
Gate-Drain Charge	Q_{gd}			2.3		nC
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=-15V, f=1.0MHz		520		pF
Output capacitance	C_{oss}			102		pF
Reverse transfer capacitance	C_{rss}			62		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=-10V,V_{GS}=-10V I_D=-4.0A,R_G=3Ω		7.5		ns
Turn-on Rise Time	t_r			5.5		ns
Turn-Off Delay Time	$t_{d(off)}$			19		ns
Turn-Off Fall Time	t_f			7		ns
Drain Source Body Diode Characteristics						
Source Drain Diode Forward Voltage	V_{SD}	I_S=-6.5A,V_{GS}=0V			-1.2	V

Notes:
1.Pulse Test:Pulse Width≤300μs,Duty Cycle≤2%.
2.Dynamic parameters cannot be verified
3.Avalanche energy testing conditions:L = 8.5mH, I_{AS} = 100A ,V_{DD} =30V, Starting T_J = 25°C

PARAMETER CHARACTERISTIC CURVE

Figure 1: Output Characteristics

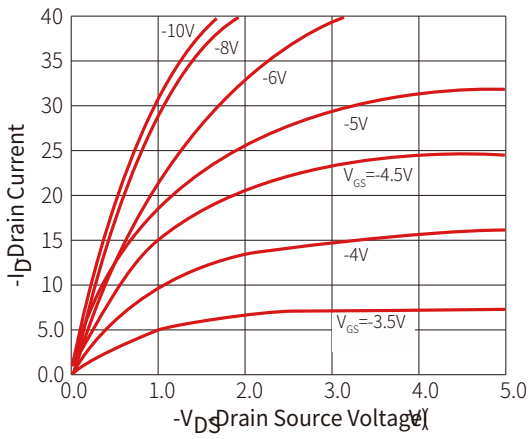


Figure 2: Transfer Characteristics

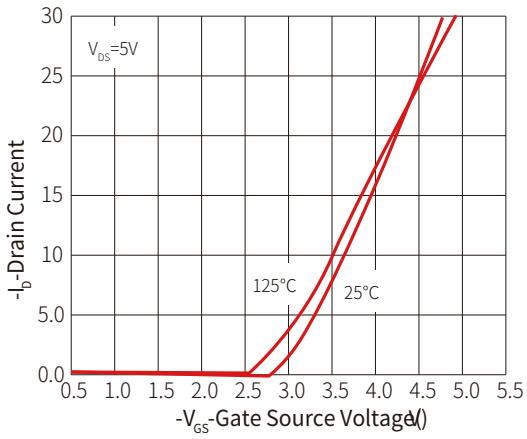


Figure 3:Rdson-Drain Current

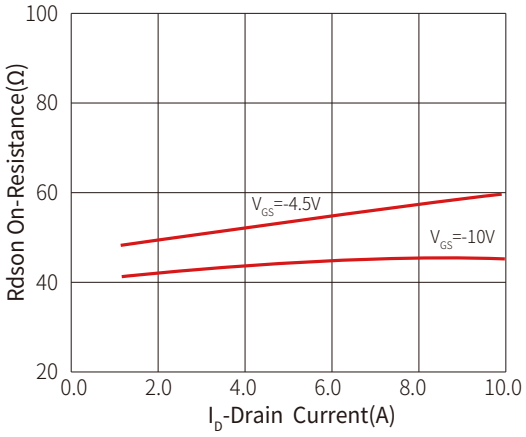


Figure 4:Rdson-Junction Temperature

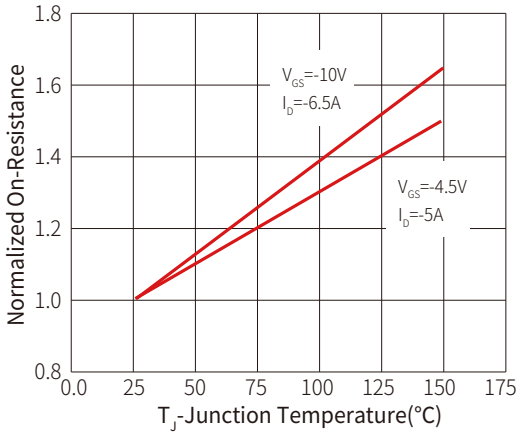


Figure 5:Gate Charge

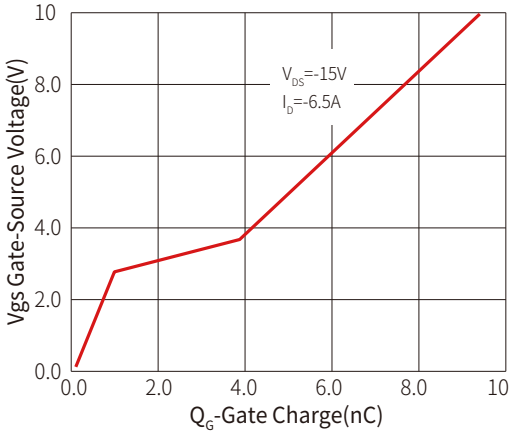


Figure 6:Source-Drain Diode Forward

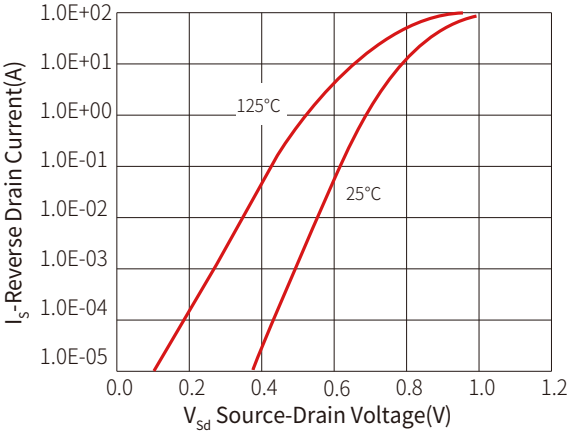


Figure 7: Capacitance vs Vds

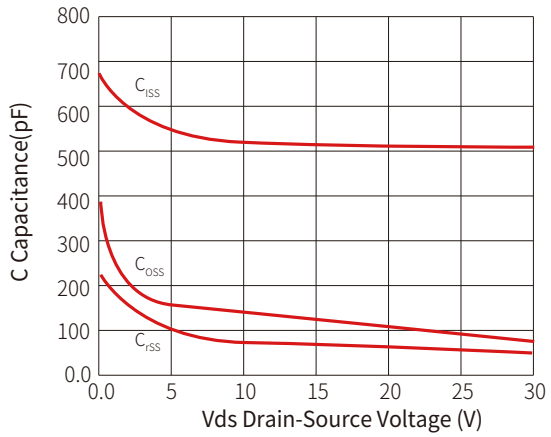


Figure 8: Safe Operation Area

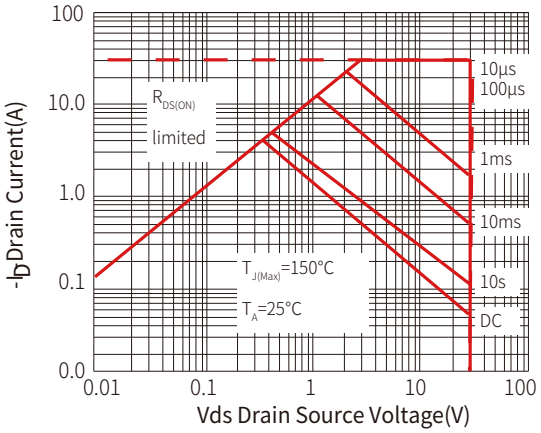


Figure 9: BV_{DSS} vs Junction Temperature

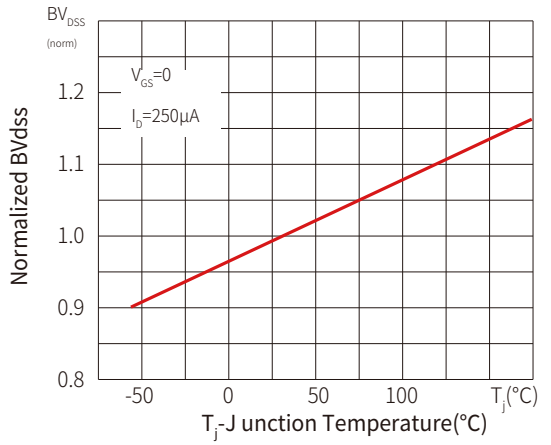


Figure 10: $V_{GS(th)}$ vs Junction Temperature

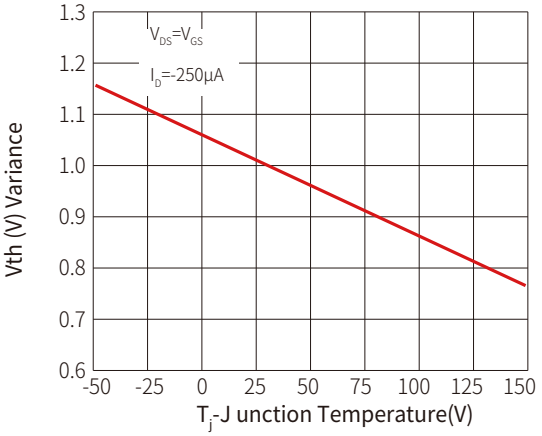
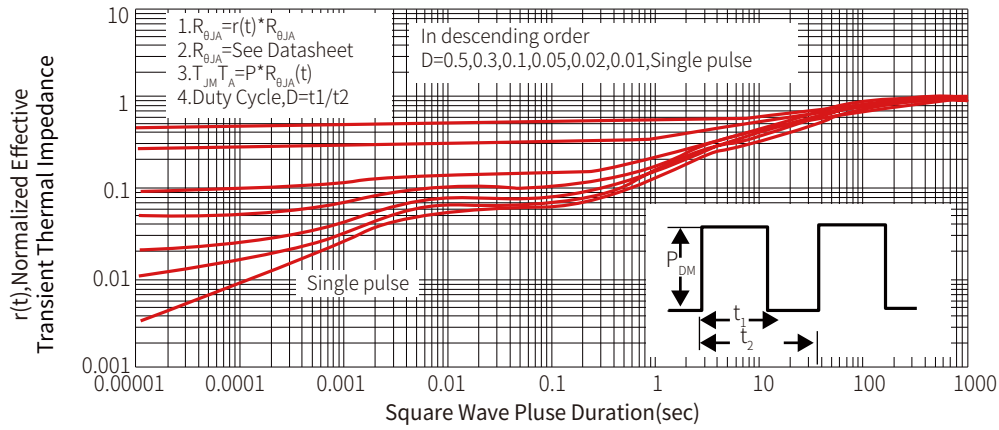
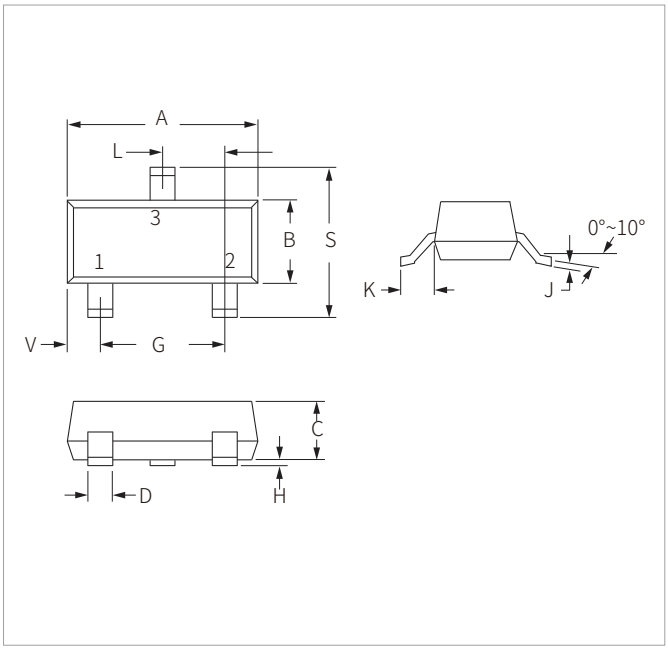


Figure 11: Normalized Maximum Transient Thermal Impedance

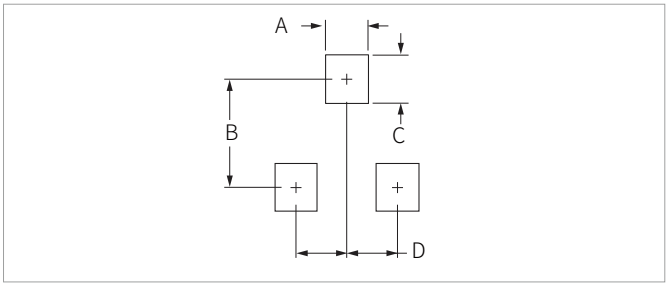


SOT23-3L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.15	0.110	0.124
B	1.50	1.70	0.060	0.070
C	1.00	1.30	0.039	0.051
D	0.37	0.50	0.015	0.020
G	1.78	2.10	0.070	0.083
H	0.01	0.15	0.001	0.006
J	0.08	0.18	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.60	3.00	0.102	0.118
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.70	1.00	0.028	0.039
B	2.30	2.50	0.090	0.098
C	0.70	1.00	0.028	0.039
D	0.80	1.10	0.032	0.043

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SPM23LT7N30	SOT23-3L	3000PCS	7”

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